IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

NORDIC INTERACTIVE TECHNOLOGIES
LLC,

     Plaintiff,

     v.

SAMSUNG ELECTRONICS CO., LTD. and
SAMSUNG ELECTRONICS AMERICA,
INC.,

     Defendants.

Civil Action No. 6:20-CV-00064

JURY TRIAL DEMANDED

DEFENDANTS' OPENING CLAIM CONSTRUCTION BRIEF

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I.   INTRODUCTION

This case involves two unrelated patents. The first,[1] U.S. Patent No. 7,590,097 (the "'097 Patent"; Ex.[2] 1), relates to the creation of ad hoc networks through the use of "middleware." This "middleware software," as recited in the claims and explicitly defined in the specification, is the key aspect of the invention and acts as an intermediary between devices to facilitate (and essentially automate) the creating of the network. The second is U.S. Patent No. 6,345,095 (the "'095 Patent"; Ex. 2), which relates to generating (and presenting) a list of telephone numbers based on inputs by a user. The user can then select a number from the list to call.

From the two patents, only three terms are in dispute; two related terms from the '097 Patent and one from the '095 Patent. For each term, Samsung's proposed constructions are deeply rooted in the plain and ordinary meaning, except where the patentee acted as his own lexicographer by explicitly defining the term in the specification or when it is unmistakable that another specific canon of construction must apply (i.e., antecedent basis).

II.   APPLICABLE LEGAL PRINCIPLES

The words of a claim are generally given their ordinary and customary meaning as understood by a person of ordinary skill in the art ("POSITA") in the context of the intrinsic evidence, which includes the claims themselves, the specification, and the prosecution history. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005). The intrinsic record must be considered, as it is the "primary basis" for determining the meaning of the claims. *Id*. at 1315 (quoting *Standard Oil Co. v. Am. Cyanamid Co.*, 774 F.2d 448, 452 (Fed.Cir.1985)). Extrinsic

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[1] There is no particular order between the two patents as they are unrelated. But as we discuss the terms for the '097 Patent first below, we refer to this as first.
[2] "Ex." refers to the Exhibits attached to the Declaration of Jin-Suk Park, filed concurrently herewith.

evidence, such as technical dictionaries and expert testimony, is less relevant, but may inform the meaning of a claim term as long as it is consistent with the intrinsic evidence. *Id.* at 1319.

If the specification, however, provides the definition of a term, that is what should govern. *Phillips*, 413 F.3d at 1316 ("our cases recognize that the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor's lexicography governs."); *see also*, *Allergan, Inc. v. Apotex Inc.*, 754 F.3d 952, 957 (Fed. Cir. 2014) ("There is an exception to this general rule when a patentee sets out a definition and acts as her own lexicographer."); *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002) ("[T]he claim term will not receive its ordinary meaning if the patentee acted as his own lexicographer and clearly set forth a definition of the disputed claim term in either the specification or prosecution history.").

Other legal principles are discussed below in the context of the Argument.

III.   OVERVIEW OF THE ASSERTED PATENTS

A.   '097 Patent

As noted above, the '097 Patent is generally directed to "middleware software" that facilitates the creation of connections between devices in "ad hoc networks." As described in the Background of the Invention portion of the specification, "[a]n ad hoc network is a short-range wireless system comprising an arbitrary collection of wireless devices that are physically close enough to exchange information." '097 Patent at 1:63-65.[3] Devices can join and leave such a network "as they enter and leave the proximity of the remaining wireless devices." *Id*. at 1:67-2:1. One example in the Background section is networks formed by Bluetooth devices, which can

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[3] There is no dispute between the parties as to what an *ad hoc* network is.

"find other Bluetooth devices as they enter and leave the communication range of the network." *Id.* at 2:19-22.

A problem with such prior art systems, as stated by the specification, is that "if no other device is present," then messages used to establish connections are "sent in vain" resulting in excessive power consumption. *Id*. at 2:42-46. To avoid this, the prior art required human intervention to "manually initiate device detection when another device of interest is present." *Id.* Accordingly, the specification states that a solution was needed that would avoid excessive power consumption and allow an application in one device to automatically find a counterpart (or other resource) in another device in a network without human intervention. *Id*. at 2:57-3:2.

To meet this need, and central to the invention of the '097 Patent, the specification describes the use of a "middleware software" to act as an automatic facilitator of the connection (e.g., if other devices are compatible). *Id.* at 3:5-17. This "middleware software" is defined in the specification and, in turn, recited in the claims.

B. '095 Patent

The '095 Patent articulates its own invention best when it states that "[t]his invention relates to the selection of telephone numbers, and more particularly to devices and methods for assisting telephone subscribers in connecting to the desired destination when the area code or service code is unknown or has changed." '095 Patent at 1:6-11.

The problem identified in the '095 Patent was that, due to the proliferation of phone numbers and area codes, identical exchange codes could be used in different area codes, even when the identical exchange codes were geographically close to each other, which "may create ambiguities" when users dial numbers outside their exchange. *Id*. at 1:40-47. That is, while

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previously an area code might have applied to an entire state, the overlay of area codes required a caller to use 10-digit dialing, even for a local number. *Id.* at 1:64-2:4.[4]

Because of this potential confusion, i.e., where calls placed without an area code could result in "an undesired connection," the '095 Patent proposed a dialing aid solution. *Id.* at 2:5-14, 2:35-49. This solution is illustrated by Fig. 2:
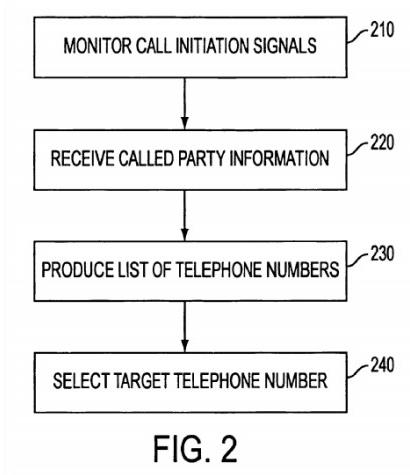
FIG. 2

'095 Patent, Fig. 2.

IV. LEVEL OF SKILL OF A PERSON OF ORDINARY SKILL IN THE ART

The parties agree to the following:

For the '097 Patent, a POSITA would have a B.S. in Computer Science or Electrical Engineering and two years of post-graduate work experience in mobile ad hoc networking.

For the '095 Patent, a POSITA would have a B.S. in Computer Science or Electrical Engineering and two years of post-graduate work experience in telecommunications.

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[4] For reference, and as an example, the specification notes that the North American Numbering Plan consists of a three-digit area code, a three-digit exchange code, and a four-digit subscriber number. *Id.* at 4:14-16.

V. ARGUMENT

A. '097 Patent Terms

1. "middleware software" (Claims 19-24)

Term	Samsung's Construction	Nordic's Construction
"middleware software"	"a software layer with an API that negotiates the communication between two applications to help an application find a counterpart application with the correct role"	"software providing discovery of applications and/or services"

The dispute is whether lexicography applies.

a. The Specification Defines Middleware Software

Patentees are bound to the definitions they provide in the specification. *See, e.g., Sinorgchem Co., Shandong v. Int'l Trade Comm'n*, 511 F.3d 1132, 1136-37 (Fed. Cir. 2007) (reversing lower court for failing to adopt an express definition in the specification and stating that "the patentee must be bound by the express definition.").

Lexicography is clear when the patentee expresses a definition with the word "is." *Id.* at 1136 (patentee "clearly, deliberately, and precisely defined the term" using the word "is" to signify lexicography); *see also, e.g.*, *BookIT Oy v. Bank of Am. Corp.*, 817 F. App'x 990, 993-94 (Fed. Cir. 2020) (finding lexicography based on "the mediator **is** a network based service available to the service provider booking services over the internet. . .") (emphasis added); *Smartphone Techs. LLC v. Research in Motion Corp.*, No. 6:10-CV-74-LED-JDL, 2012 WL 489112, at *4 (E.D. Tex. Feb. 13, 2012) ("the patentee clearly defined synchronization: '[t]he synchronization setting **is** the default method of operation wherein the corresponding databases on both the desktop and portable are reconciled.'") (emphasis added); *Techno View IP, Inc. v. Oculus VR*, LLC, No. CV 17-386-VAC-CJB, 2018 WL 4141032, at *3 (D. Del. Aug. 30, 2018) (finding lexicography based on "is" and "are" defining claim term in specification).

In the '097 Patent, the specification clearly defines "middleware software" using the word "is":

> Middleware software **is** a software layer with an API that negotiates the communication between two applications to help an application find a counterpart application with the correct role*.*

'097 Patent at 6:39-42 (emphasis added). Samsung's construction is a verbatim copy of this definition.

b. Middleware Software is Referenced in Every Embodiment

This definition occurs in a section of the specification that stands alone, un-tied to any specific embodiment. *Id.* at 6:31-45. Notably, "middleware software" is also otherwise referenced in the description of every Figure and associated embodiment, but there is no other (much less contrary) definition or description of "middleware software." *See Sinorgchem* 511 F.3d at 1138 (there is "no need to search further for the meaning of the term" when "the specification explains and defines a term used in the claims.") (citation omitted). Examples include:

Fig.	Excerpt (emphasis added)	Cite
1	"Server 110 accesses **middleware software** 220 to request a socket connection with termination 120 (step 304)."	7:10-11
2A	"**Middleware software** 220 includes an application program interface (API) 221 that help an application program running on server 110 find and communicate with a counterpart application running on terminal 120."	5:56-60
2B	"**Middleware software** 270 includes an API 271 that help an application program running on terminal 120 find and communicate with a counterpart application running on server 110 or another terminal 120."	6:14-18
3A	"Server 110 accesses **middleware software** 220 to request a socket connection with terminal 120 (step 304)."	7:10-11
3B	"Instances of **middleware software** in terminal 120 and server 110 begin scheduling these newly found counterpart application pairs for execution (step 328)."	7:61-63
4A	"Application C 401 resides in server S memory 400 and accesses **middleware software** 403 via API 402. **Middleware software** 403 registers application C 401 with application directory 404 by adding a	8:4-9

	table entry to indicate that application C resides in the local device (i.e., server S) and assumes the role of server."	
4B	"As shown in FIGS. 4A and 4B, the disclosed data items for each entry in the **middleware software** application directory server include a device identifier (e.g., "local", an address, or other unique identifier), an application identifier (e.g., application name or other unique identifier), and a role for the application (e.g., "client", "server", "peer", etc.)."	8:53-58
5	"In yet another embodiment, the modification to the Bluetooth inquiry result command is not necessary, if a dedicated indication parameter to indicate the presence of the **middleware software** is introduced to the Bluetooth inquiry result command specifications."	10:28-33

Accordingly, this is a straightforward application of the canon of lexicography, and the express definition provided in the specification for "middleware software" must apply.

2.   "the middleware layer" (Claims 20-21)

Term	Samsung's Construction	Nordic's Construction
"the middleware layer"	Indefinite	"software layer that includes middleware software"

The dispute is whether the law of antecedent basis applies. As a threshold issue, the term "middleware layer" in the claims is **always** preceded by the definite article "the." That is, though Nordic proposes the term "middleware layer" be (also) construed separately from "**the** middleware layer" there is no such separate term in the claims – the claim term is simply "the middleware layer."

Indeed, the Parties' dispute is centered on the fact that while the term "**the** middleware layer" occurs in dependent claims 20 and 21, there is no basis for the use of the definite article "the" since the term is not recited prior to this use, and therefore has no antecedent basis. For example, a term equivalent to "**a** middleware layer" does not occur in any of the claims and particularly not in claim 19 from which claims 20 and 21 depend.

Such a mistake would generally render claims 20 and 21 invalid, unless there is a legal basis to provide for a proper antecedent basis. *See, e.g.*, *Halliburton Energy Servs., Inc. v. M-I*

LLC, 514 F.3d 1244, 1249 (Fed. Cir. 2008) ("a claim could be indefinite if a term does not have proper antecedent basis where such basis is not otherwise present by implication or the meaning is not reasonably ascertainable."); *see also*, *In re Packard*, 751 F.3d 1307, 1310-14 (Fed. Cir. 2014) (finding claim indefinite for lack of antecedent basis); *Bushnell Hawthorne, LLC v. Cisco Sys., Inc.*, 813 F. App'x 522, 527 (Fed. Cir. 2020) (same). A claim can be saved, however, if the antecedent basis, though not identical, can be understood. *See, e.g.*, *Energizer Holdings, Inc. v. Int'l Trade Comm'n*, 435 F.3d 1366, 1370-71 (Fed. Cir. 2006) (finding "anode gel" to be the antecedent basis to "said zinc anode"); *Trover Grp., Inc. v. Dedicated Micros USA*, No. 2:13-CV-1047-WCB, 2015 WL 1263358, at *9-*10 (E.D. Tex. Mar. 19, 2015) (finding "new digitized images" to be the antecedent basis to "said second images").

But, Nordic **waives any argument that could potentially allow for the claim to be saved** because its position is that the law of antecedent basis need not apply to the analysis at all. *See, e.g.*, *Digital-Vending Services Int'l, LLC v. The Univ. of Phoenix, et al.*, 672 F.3d 1270, 1278 (Fed. Cir. 2012) (finding patentee waived argument to challenge a construction on appeal when it did not raise it in the district court); *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1368 (Fed. Cir. 2008) (holding patentee could not offer a new argument to save the claim from indefiniteness for the first time on appeal).

Accordingly, even though it may be possible to determine the antecedent basis under a proper legal analysis, because Nordic does not offer one, and even appears to argue that there is no need for antecedent basis counter to well-established precedent, the claims should be found invalid as indefinite for lack of antecedent basis.

B.   '095 Patent Term:

1.   "call initiation signals" (Claims 16, 30)

Term	Samsung's Construction	Nordic's Construction
"call initiation signals"	"any signal indicating that a calling party is going to place a telephone call"	plain and ordinary meaning, or "part of a telephone number"

The parties dispute the plain and ordinary meaning of this term. Samsung's proposal is grounded in the plain understanding of the words. That is, a "call initiation signal," by its plain language and grammar, is a "signal" that a "call" will be placed (e.g., initiated). From this foundation, Samsung's construction considers how the plain meaning would be understood in light of the intrinsic evidence in the specification. *Phillips*, 415 F.3d at 1313. In particular, Samsung's proposed construction encompasses every exemplary signal referred to in the specification as a "call initiation signal," as cataloged in the table below:

Call Initiation Signal	Excerpt (emphasis added)	Cite(s)
Standard telephone subscriber unit signaling … that indicate a desire to utilize the apparatus of the present invention	"In preferred embodiments, the call initiation signals may be **standard telephone subscriber unit signaling** … **that indicate a desire by Calling Party 180 to utilize the apparatus of the present invention**."	4:48-51
Signals received from the keyboard of a personal computer… that indicate a desire to utilize the apparatus of the present invention	"In preferred embodiments, the call initiation signals … **may be signals received from the keyboard of a personal computer**, as is known in the art, **that indicate a desire by Calling Party 180 to utilize the apparatus of the present invention**."	*Id.*
An activation sequence	"In a preferred embodiment of an apparatus of the present invention, the call initiation signals include **an activation sequence**." "In an alternative preferred embodiment, the call initiation signals may contain a particular **activation sequence**, as is known in the art, and the predesignated sequences include this activation sequence."	3:12-14; 5:10-13; 11:7-8

	"In a preferred embodiment, the call initiation signals contain **an activation sequence**."	
Activation sequence including a code character selected from the group consisting of # and *	"In this alternative preferred embodiment, t**he activation sequence may include a code character selected from the group consisting of # and *.**" "In a further preferred embodiment, the **activation sequence includes a code character selected from the group consisting of # and *.**"	4:13-15; 11:8-10
Predesignated sequences	"In preferred embodiments, the apparatus of the present invention forms a transparent link between Calling Party 180 and a telecommunications network until Monitor 145 receives **certain predesignated sequences** as part of the call initiation signals."	4:53-57
Any call initiation signals that indicate that Calling Party is attempting to place a telephone call	"In a preferred embodiment, the predesignated sequences are **any call initiation signals that indicate that Calling Party 180 is attempting to place a telephone call**."	4:66-5:2
A full telephone number	"In a preferred embodiment, the predesignated sequences comprise call initiation signals that include a **full telephone number**."	5:2-4
A telephone number without an area code	"In a further preferred embodiment, the predesignated sequences comprise call initiation signals that include a **telephone number without an area code**."	5:4-7
A subscriber number without an area code or an exchange code	"In a preferred embodiment, the predesignated sequences comprise call initiation signals that include a **subscriber number without an area code or an exchange code**."	5:7-10

Claim terms should be construed to at least read on the disclosed embodiments. *See Verizon Services Corp., v. Vonage Holdings Corp.*, 503 F.3d 1295, 1305 (Fed. Cir. 2007) ("We normally do not interpret claim terms in a way that excludes disclosed examples in the specification."). Accordingly, based on the embodiments in the '095 Patent, the intrinsic evidence demonstrates that "call initiation signals" are not limited by the content of the signal, as Nordic proposes. Instead, "call initiation signals" as described in the specification vary from a full telephone number to just a "#" or "*". Moreover, nothing in the specification limits the scope of the term to any of the disclosed embodiments. In fact, the specification does the opposite, asserting that the signal can be **any** signal that indicates an attempt to place a telephone call. *See, e.g.*, '095

Patent at 4:66-5:2; 4:48-51 ("indicate a desire to utilize the apparatus of the present invention").

Therefore, based on the plain meaning and intrinsic evidence, Samsung's proposal not only gives meaning to each of the words used in the claim term, but also encompasses every signal disclosed in the embodiments.

In addition, apart from excluding most of the disclosed embodiments, Nordic's proposed construction (i.e., "part of a telephone number") cannot be correct because it cannot be reconciled with the dependent claims. In particular, Nordic's construction would in essence not allow for the features recited in dependent claims 17 and 18 (which depend from independent claim 16), which state that:

- "wherein the call initiation signals contain an activation sequence" (17); and
- "wherein the activation sequence comprises a code character selected from the group consisting of # and *" (18).

Id. at 14:7-12.

Accordingly, since the "call initiation signals" of claim 18 must contain "a code character selected from the group consisting of # and *," Nordic's proposed construction is too narrow and cannot be correct because the patent itself acknowledges the symbols "#" and "*" are code characters (i.e., not numbers, much less numbers that are part of a telephone number). *See, e.g.*, *Intellectual Ventures I LLC v. T-Mobile USA, Inc.*, 902 F.3d 1372, 1378 (Fed. Cir. 2018) (reversing claim construction that excluded/was contrary to limitations recited in dependent claims); *Cave Consulting Grp., Inc. v. Truven Health Analytics Inc.*, No. 15-CV-02177-SI, 2016 WL 2902234, at *6 (N.D. Cal. May 13, 2016) (rejecting construction that would limit independent claim to "indirect stabilization" where dependent claim recites "direct stabilization" because "proposed construction would effectively nullify [the dependent claim]").

VI.   CONCLUSION

For the above reasons, Samsung respectfully requests that the Court adopt its proposed

constructions.

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CERTIFICATE OF SERVICE

I hereby certify that all counsel of record who are deemed to have consented to electronic service are being served on October 29, 2020 with a copy of this document via electronic mail.

/s/ Jin-Suk Park
Jin-Suk Park